

## MEMORANDUM

**DATE:** December 11, 2015

**SUBJECT:** Approval of FY2016 Funding for Non-Time Critical Removal Assessment and Engineering Evaluation/Cost Analysis (EE/CA) for Mines in Western Area of the Ambrosia Lake Sub-District (Sections 10, 22 complex, 24, and 30) and Schedule for Review/Funding for Other FY2016 Tronox Settlement Projects

**FROM:** Chip Poalinelli, Tronox NAUM Coordinator, Region 9  
Lisa Price, Tronox NAUM Coordinator, Region 6

**TO:** Clancy Tenley, Assistant Director, Superfund Division, Region 9

**THRU:** *Chris Villareal for*  
Ben Banipal, Associate Director, Technical and Enforcement Branch, Region 6

**SSID Nos.:** A6FP and A0982

### **I. Introduction**

This memorandum recommends that you approve funding for the *Non-Time Critical Removal Assessment and EE/CA for Mines in Western Area of the Ambrosia Lake Sub-District (Sections 10, 22 complex, 24, and 30)* project, as part of the implementation of the Tronox Settlement (*In re: Tronox Incorporated, et al*, Case No. 09-10156 (Bankruptcy, S.D.N.Y.)).

The west geographic sub-area of the Ambrosia Lake mining district is composed of the surface radiologically impacted areas associated with the Section 10, Section 22 complex, Section 24 and Section 30 West uranium/vanadium mines operated by Kerr McGee and successor companies from the 1960 through approximately 2005. This geographic sub-area encompasses an estimated area of 500 – 600 acres of excess radiological contaminated surface soils/debris that are located along or abutting the eastern boundary of the Baca – Prewitt Chapter of the Navajo Nation. U.S. EPA and the Navajo Nation are currently in the process of determining which Region will have the lead for Sections 10 and 22, based on whether these mine sites are, or may be, within Navajo Nation tribal jurisdiction. Sections 24 and 30 are outside of Navajo Nation tribal jurisdiction in New Mexico and are part of U.S. EPA Region 6.

## II. Background

The Tronox Navajo Area Uranium Mines (Tronox NAUM) are located primarily in the Grants Mining District in New Mexico and on the Navajo Nation in the Cove Wash area and Eastern Agency. During the December 3, 2015, Tronox meeting between the U.S. EPA and the Navajo Nation, the U.S. EPA proposed the following FY2016 projects (see attached *FY2016 Proposed Activities and Goals, Tronox Settlement NAUM – December 3, 2015*): (1) Cove wash watershed activities; (2) Cove Chapter area Tronox Mines remedial investigation/feasibility study activities; (3) Cove Transfer Station slope stabilization and cover repair; (4) Cove air quality sampling; (5) Cove Day School sampling; (6) Mine Category Assessment Protocol (MCAP) reconnaissance; (7) Removal Site Evaluations; (8) Interim Actions (time critical /stabilization); (9) LiDAR Drainage Assessment; (10) Tronox Data Management Portal; (11) Section 32 – 33 EE/CA; (12) Quivira Mines Interim Activities and EE/CA Completion; (13) Navajo Nation Superfund Building; (14) Cooperative Agreements and Grants for Navajo Nation and Training/Education Institutions; (15) East Agency Regional (Grants Mining District) Community Involvement Plan; (16) Mine Site Evaluations and EE/CA; (17) Water Supply Sources Investigation; and (18) Cooperative Agreements for NMED and MMD support on Tronox NAUM mines and groundwater assessment.

During the Tronox meeting, Navajo Nation, New Mexico, and U.S. EPA concurred that the *Non-Time Critical Removal Assessment and EE/CA for Mines in Western Area of the Ambrosia Lake Sub-District (Sections 10, 22 complex, 24, and 30)* project, listed as a sub-project under the Region 6 “Mine Site Evaluations and EE/CA (#16)” projects, should proceed and receive funding for FY2016.

The remaining FY2016 proposed projects, listed above, are pending review comments from Navajo Nation and other stakeholders (due 12/18/15) and will be documented in a future funding memo.

## III. Proposed Project and Funding for Approval for FY2016

The projected contract funding for the *Non-Time Critical Removal Assessment and EE/CA for Mines in Western Area of the Ambrosia Lake Sub-District (Sections 10, 22 complex, 24, and 30)* project for FY2016 is based on information currently available and the best estimates of the project team. Estimated contract funding and scope for these project will be further defined during the work plan process.

As described above, the only FY2016 project proposed for additional funding at this time is:

- *Non-Time Critical Removal Assessment and EE/CA for Mines in Western Area of the Ambrosia Lake Sub-District (Sections 10, 22 complex, 24, and 30).*

**Total Interim Projected Funds for FY2016 = \$1,700,000**



The requested project funding is based on estimated contractor costs, there will also be U.S. EPA costs (payroll, travel, and expenses) associated with this project that will be reported in the Special Account Monthly Tracking Report.

Project activities will include the following:

- Develop a comprehensive community relations plan to inform, update, and seek input from the potentially effected residents of the adjacent Baca – Prewitt Chapter of the Navajo Nation and the potentially effected residents of McKinley County, NM. Community relations will be conducted in collaboration with U.S. EPA Region 9 and the Navajo Nation;
- Conduct a non-time critical removal assessment to investigate and document the nature and extent of the mining related radiological contamination present in the surface soils/debris associated with the mines in the geographic sub-area; and
- Prepare an EE/CA based on the assessment data to develop and proposed alternatives to mitigate, reduce and/or eliminate the actual or potential human or ecological exposures to radiological contamination on or impacting the Navajo Nation or communities of the State of New Mexico.

#### **IV. Purpose/Justification**

The purpose of the project is to investigate and propose alternatives to mitigate, reduce and/or eliminate the potential for human or ecological exposures to uranium/vanadium mining wastes at the Tronox NAUM settlement area mines in the west geographic sub-area of the Ambrosia Lake mining district in New Mexico adjacent to the Baca – Prewitt Chapter of the Navajo Nation.

#### **V. Anticipated Costs and Accounting**

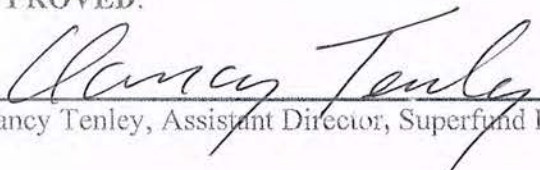
Future costs presented in this “Annual Funding Planning Memo” are estimates. Region 9 and Region 6 will be examining quarterly summaries of expenditures in order to further refine these estimates and determine whether supplemental funding will be needed for their efforts in FY2016. If additional funding is needed for this project in FY2016, the Tronox Coordinators will present a request for approval of supplemental funding, along with a justification and cost estimate. An “Annual Funding Memo” for FY2017 funding will be presented no later than September 30, 2017.

**VI. Approval for FY2016 Funding**


The U.S. EPA Tronox NAUM Coordinators recommend the proposed FY2016 project and estimated funding for the Tronox NAUM Special Account as described in Section III of this memo.

Please indicate your approval or disapproval on the signature lines provided below. We look forward to responding to any questions or concerns.

**APPROVED:**

 12/11/15  
Clancy Tenley, Assistant Director, Superfund Division, Region 9 Date

**NOT APPROVED:**

  
\_\_\_\_\_  
Clancy Tenley, Assistant Director, Superfund Division, Region 9 Date

# **FY2016 Proposed Activities and Goals Tronox Settlement NAUM**

## **(December 3, 2015)**

### **EPA Region 9**

#### **I. Cove Wash Watershed Activities (Wilson Y.)**

**Purpose:** Investigate surface water and groundwater pathways, potential sources and receptors in the Cove Wash watershed.

**Background:** A total of 50 abandoned uranium mines (AUMs) are located within the Cove Wash watershed. Twenty-six of the AUMs were historically operated by Kerr McGee Corporation, a corporate predecessor to Tronox Incorporated. Previous studies have identified uranium and other constituents of concerns (COCs), including arsenic and molybdenum, within surface water, groundwater, and sediment. Although providing important information, all previous studies were limited in scope and only looked at parts of the watershed.

The Cove Wash Watershed Assessment will answer the following questions:

- What is the distribution of COC concentrations in surface water, groundwater, and sediment in the Cove Wash watershed?
- Are the concentrations of COCs in surface water and groundwater present at concentrations above the Maximum Contaminant Level (MCL) for drinking water?
- Are the concentrations of COCs in sediments present at concentrations above the EPA Regional Screening Levels (RSLs) for protection of groundwater?
- Is waste rock present within Cove Wash watershed drainages contributing to elevated concentrations of COCs within the watershed?
- What are all potential sources of contamination contributing to elevated concentrations of COCs within the watershed?

#### **Proposed Activities:**

- Snowmelt sampling to establish surface water pathways, focusing on seeps and springs as potential sources (4 weeks, April/May)
- Low flow sampling focusing on sediment concentrations (3-4 weeks, September)
- Dam sediment and irrigation water study
- Dine College Support Agency Cooperative Agreement supporting student research, internship programs, and community involvement activities
- Interagency Agreement with USGS for technical support
- Cove Chapter Support Agency Cooperative Agreement for logistical support during EPA investigations, meetings, conferences, trainings, and community events
- Cultural Resource surveys (FY16-17)
- Biological surveys: Mexican spotted owl surveys (FY16-17); traditional use and T&E plants; ecological risk assessment
- HAZWOPER and Wilderness Safety training
- Community Involvement events (Winter and Spring)
- Community Involvement Plan



**Proposed contracting costs: \$1,700,000**

## **II. Cove Chapter Area Tronox Mines Remedial Investigation/Feasibility Study Activities (Gaelle G.)**

**Purpose:** Initiate a remedial investigation and feasibility study (RI/FS) for the 26 Cove Chapter Tronox settlement-named abandoned uranium mines and affected environment. The purpose of the RI/FS is to gather information sufficient to support and inform risk management decisions regarding what remedy will be most appropriate given what is known about the site, and to collect data necessary to adequately characterize the site for the purpose of developing and evaluating effective remedial alternatives. Risk management decisions are based on human health and ecological risk assessments, which are discussed in the RI. For FY16, the goal is to initiate RI/FS scoping activities, focusing on conceptual site model development and data gaps analysis.

**Background:** Previous studies of the Cove area mines include, among others, an overall Navajo Nation abandoned uranium mine screening report and atlas (completed in 2007), removal actions at Cove Transfer Stations 1 and 2 (completed in 2012), a 2014 site reassessment for Mesa I Mines 10 to 15, and a watershed assessment (in progress). The RI/FS framework will assimilate information from these and other actions and investigations into a strategic process to, as its final step, recommend risk-informed, feasible remedial actions for the area.

### **Proposed Activities:**

- Scoping meetings, including a scoping kickoff meeting/site visit, and participate in weekly or bi-weekly project meetings;
- Present/brief on work accomplished and path forward at each project meeting;
- Briefings to the public about RI/FS work being done;
- Develop an RI/FS schedule;
- Draft a conceptual site model, to include:
  - Providing a full site description including history, previous site removals and other actions at the site
  - Reviewing previous reports and studies
  - Describing the physical characteristics of the site, including hydrologic and geologic information
  - Identifying cultural and biological resources
  - Identifying and characterizing waste sources
  - Describing the characteristics of the waste and resulting chemicals of potential concern (COPC)
  - Discussing and illustrating fate and transport, exposure pathways, exposure routes, and receptors
  - Discussing sensitive populations
  - Making recommendations for dividing the site into operable units (OU), if applicable
- Research, gather, and analyze all existing data and identify data gaps that still exist in order to complete a human health risk assessment (HHRA), ecological risk assessment (ERA), and other RI/FS elements;
- Start work on an RI/FS work plan, to include:
  - A sampling and analysis plan (SAP)/quality assurance project plan (QAPP)
  - Robust data quality objectives (DQO)
  - A field sampling plan (FSP)
  - Integration of known information about applicable or relevant and appropriate requirements (ARAR) and remedial action objectives (RAO)
  - Research and identification of potentially applicable technologies



**Proposed FY16 contracting costs: ~\$250,000**

### **III. Cove Transfer Station Slope Stabilization and Cover Repair (Chip P.)**

**Purpose:** This effort would be to perform an engineering evaluation, stabilize, and repair the area of the former Cove Transfer Station (TS-1N) as a follow up to a previous removal action and site restoration. This project is the result of heavy rains eroding the cover throughout the site.

**Background:** Based on 2011 through 2012 removal assessment data, the U.S. EPA Region 9 ERS determined that a soil removal action was required at the TS1 sites to mitigate potential human health and environmental exposure risks from AUMW. The purpose of the 2012 removal action performed by U.S. EPA and the START and Emergency and Rapid Response Services (ERRS) contractors was to reduce the risks to potential receptors by reducing the activity concentrations of radioisotopes in surface and shallow subsurface soils that are present due to historic uranium mining; to confirm that gamma radiation activity concentrations in soils remaining after the removal action were below the established Derived Concentration Guidance Level (DCGL) in areas that pose the greatest potential for human health risks; and to ensure that no off-site migration of airborne particulate contaminants above the Derived Air Concentration (DAC) occurred during the removal activities.

**Proposed contracting costs: ~\$350,000\***

\*This number will be more reliable once the engineering evaluation is completed.

### **IV. Cove Air Quality Sampling (Gaelle G.)**

**Purpose:** Investigate ambient air quality levels in the Cove community to address community concerns and to obtain baseline data about air quality prior to clean-up activities. Also simultaneously sample air quality near contaminated abandoned uranium mine areas to better understand any potential air transport from those areas to the Cove community.

**Background:** A total of 50 abandoned uranium mines (AUMs) are located within the Cove Wash watershed. Twenty-six of the AUMs were historically operated by Kerr McGee, which became Tronox. During Region 9's interviews with the Cove Community for development of the Community Involvement Plan for our work in Cove, many residents raised concerns about radionuclides being transported by wind and also about dust levels. We are not aware of any air monitoring data that exists for the Cove Community that could be used to address these concerns. While air monitoring has been done at the periphery of removals during response actions, it has not been conducted at a scale that would allow us to draw conclusions about ambient air levels in the Cove community or any transport from the mine areas. In addition to addressing community concerns about current air quality, Region 9 wants to obtain baseline data about air quality prior to starting clean-up activities.

#### **Proposed Activities:**

- Establish a network of monitors for PM-10 and radionuclides analysis in the Cove Community. Conduct monitoring for a year prior to any major earthmoving activities.
- Simultaneously monitor air quality near contaminated abandoned uranium mine areas to better understand any potential transport from those areas to the Cove Community.

**Proposed contracting cost: ~\$300,000 - \$500,000**

## **V. Cove Day School Sampling (Gaelle G.)**

**Purpose:** NN EPA and US EPA have heard concerns from Cove Day School parents and Cove community residents about the Cove Day school potentially being contaminated from historic mining activities.

**Background:** Cove Day School is a BIA facility. We are planning to meet with parents, school board members, and BIA officials in early September to better understand potential concerns and chart next steps for follow-up, as needed.

**Proposed Activities:** To be determined based on meeting with school board members, school board members, and Navajo EPA.

**Proposed contracting costs: ~\$10,000 – 100,000\***

\*This number will be more reliable once the meeting with parents, school board members, and BIA officials has occurred.

## **VI. Mine Category Assessment Protocol (MCAP) Reconnaissance (Randy N.)**

**Purpose:** Develop and implement a systematic method for assessing and surveying abandoned uranium mine sites and other potential contributions of uranium material areas to determine and evaluate removal factors impacting future site work and to develop ranking system for prioritizing Removal Site Evaluations in FY16 and FY17. Activities include:

- Create Evaluation criteria such as:
  - Mine Features (adits, waste piles, pits, etc)
  - Potential Human Exposure (pathways, structures, etc)
  - Mine Topography (cliffs, etc)
  - Waste Rock Nature and Extent/Volume
  - Mining Debris (wood, metal, etc)
  - Potential Migration of Waste Offsite (pathways)
  - Proximity to Surface Water
  - Proximity to other AUMs
  - Accessibility Routes
  - Etc.
- Conduct Historical Review:
  - ASPECT Survey Data
  - Gamma Scanning Results
  - Site Observation Reports
  - Aerial Imagery
  - AML Logbooks and Sketches
  - AML Site Plans
  - Existing GIS Data
  - Historical Geological Reports



- Etc.
- Create the MCAP Target list, which should include:
  - Tronox mine claims;
  - “Other sites” mine claims;
  - Areas identified by ASPECT within ½ and ¼ mile of either the Tronox or “other sites” mine claims exceeding 3 pCi/g plus background;
  - Any mine claim within ½ and ¼ of either the Tronox or “other sites” mine claims.
- Conduct LiDAR scans of one Mine claim area connected to a drainage pathway. This will provide a better understanding of the drainage pathway, and volumetric measurement of waste piles as well as give the ability to ‘see’ into hard to reach or currently inaccessible areas
- Field events
  - Spring 2016 – *implementation of MCAP reconnaissance*

**Proposed contracting costs: ~\$400,000**

## **VII. Removal Site Evaluations (Randy N.)**

**Purpose:** 2016 Removal Site Evaluations (RSE) of multiple mines based on the results of the MCAP reconnaissance report recommendations and identified areas

Typical efforts for an RSE:

- 100% gamma scan of identified areas (SAP);
- Surface and Subsurface soil sampling (SAP);
- Identify any immediate threats to human health and the environment (Time critical removal actions); and
- Community involvement.

Based on the MCAP reconnaissance report recommendations and identified areas, develop a schedule for implementation of the RSEs. There are some factors that could affect implementation:

- Number of identified areas;
- Logistical support (possible site specific contract); and
  - Remote base camp
  - Food services
  - Power
  - Telecommunications
  - Health and Safety support
- Road access and maintenance (site specific contract/AML).

Contract Resources: START, Contracts for EMT service, Logistics and Surveys

Field events:

- **June 2016** - 1/3 of identified areas to be addressed
- **August 2016** - 1/3 of identified areas to be addressed

**Proposed contracting costs: ~\$1,500,000 – \$2,500,000\***

\*This number will be more reliable once the MCAP reconnaissance is completed

### **VIII. Interim Actions (time critical/stabilization) (Randy N.)**

**Purpose:** During the 2016 RSE event, some areas may be identified as eligible for interim/stabilization actions. Some of these actions could be but not limited too; stabilizing existing piles, consolidating piles, posting signs and erecting fences. Contract resources may be: ERRS, USACE, NN AML, BOR or a site specific.

**Proposed contracting cost: Depending on the size and scope, these interim actions could range from \$500,000 - \$1,000,000**

### **IX. LiDAR Drainage Assessment (Randy N.)**

**Purpose:** Based on the beta test of the LiDAR implementation and assessment from the 1 mine claim boundary and drainage pathway from the MCAP reconnaissance, the LiDAR assessment will be implemented throughout the Cove watershed. This would be a partnership with Nevada Advanced Autonomous Systems Innovation Center (NAASIC) of the University of Nevada, Reno ([www.unr.edu/naasic](http://www.unr.edu/naasic)). Associated with the LiDAR study, the University of Nevada, Reno would partner with Dine College ([www.dinecollege.edu](http://www.dinecollege.edu)), Northern Arizona University ([www.nau.edu](http://www.nau.edu)) and Navajo Technical University ([www.navajotech.edu](http://www.navajotech.edu)) to set up an intern program, providing students the option to participate in the study, while learning skills for their future.

**Proposed contracting cost: The costs depend on the MCAP target list and the RSE list ~\$1,000,000**

### **X. Tronox Data Management Portal (Randy N.)**

**Purpose:** Implement the Portal Requirements and Data Management plan per the February 2015 contractor tasking. This next phase of this tasking will provide project planning and support, Overall Portal Architecture, Database Design, Geographical Information System (GIS) Geodatabase Architecture, Web user interface, Mobile solution (collection and dissemination), and Beta testing / debugging and the final Portal roll out. This current phase of work is funded.

There is an expectation that ongoing maintenance and potential upgrades will be made after the Portal has some operational or Up time. Also, it is becoming clear that once the Portal is in place, there will need to be an effort to digitize and load historical information relevant to the Tronox settlement. This process will probably happen in phases and will be determined by User need.

**Proposed contracting cost: ~\$200,000**



## **XI. Section 32 - 33 EE/CA (Randy N.)**

**Purpose:** This effort would be to follow up on the removal action. The EE/CA identifies the objectives of the removal action and analyzes the effectiveness, implementability, and cost of various alternatives that may satisfy these objectives. Once the alternatives have been described and individually assessed against the criteria, a comparative analysis should be conducted to evaluate the relative performance of each alternative in relation to each of the criteria. This process should identify key trade-offs that would affect the remedy selection. Based on this analysis, the EE/CA should determine the recommended action and describe the reasons for the recommendation.

**Proposed contracting cost: ~\$200,000**

## **XII. Quivira Mines Interim Activities and EE/CA Completion (Mark R.)**

**Purpose:** Eliminate human, livestock and ecological exposure to shallow mining related soil contamination around four vent holes that are located in the community at Quivira. Prevent erosion and run-off from the main waste rock pile. Engage the community on evaluating final response actions. This effort will include a Quivira vent hole removal action, ongoing maintenance, closeout of Quivira CR-2, and complete EE/CA and community involvement related to the EE/CA.

**Background:** The Quivira Mines include Quivira CR-1, Quivira CR-1 E, and Quivira CR-2. Quivira CR-2 never had an adit sunk and our PA/SI level investigation in 2015 showed no contamination. Quivira CR-1 is the primary mine site and is located near the NECR mine site and borders that same Red Water Pond Road community of 70 people. The CR-1 site has approximately 400,000 cy of contaminated soil/waste rock. CR-1 E is approximately 1 mile away as the crow flies, but is in a separate drainage and separate community called the Rio Lobo/Pipeline Canyon community. CR-1 E has approximately 150,000 cy of waste. Both sites have had interim actions and are behind fences. The remaining yet-to-be-addressed contamination is located around 4 vent holes in and around both communities.

### **Proposed Activities in 2016:**

- Document the absence of contamination at Quivira CR-2 and close the site off our books. The work will involve excavation of approximately 6,000 cy of contaminated soil and stockpiling it at the main waste rock pile at the Quivira CR-1 mine site. The excavated soil will be placed under coconut mats (or similar) to control dust and erosion. The excavated areas will be backfilled as necessary to allow grading to original drainage patterns, followed by reseeded.
- Rio Algom has been performing the annual maintenance at the mine site. Given the funds available from the Tronox settlement, it is now appropriate for Region 9 to take that over that maintenance and replace and add straw wattles, tamp down and fill erosional rills, repair sedimentation catch basins, repair fencing, etc. Significant road and bridge repairs will be necessary to open access to transport the material, repair the roads after the work, and prepare the bridges to support the final removal action. The main bridge on Red Water Pond Road (RWPR) is currently in danger of catastrophic failure. The two highest priorities for the community are repairing the bridge, which poses an extreme physical hazard under current conditions, and removing the vent hole contamination. The soil around the vent holes contains the last of the contamination that is within what they consider the boundaries of their neighborhood and they have great fear that fences and signs are not sufficient to keep children and livestock out.



- Complete the EE/CA, which involves finalizing alternatives, finalizing cost estimates and then producing a draft document for NNEPA and other governmental stakeholders. Work out key issues with NNEPA then produce a Final for public comment. Conduct extensive community involvement, hold several official public meetings and collect and respond to comments.

Past work: The vent holes were gamma scanned and the soil was sampled to delineate the lateral and vertical extent of contamination in 2015. In 2014, at EPA's direction, Rio Algom erected a fence around one vent hole located near a house.

**Estimated cost:**

- Community Involvement Plan - \$50,000
- Closeout documentation for CR-2 - \$10,000
- Vent Hole Soil Removal - \$400,000
- Crossing at Pipeline Canyon Road and other road repairs on Pipeline Canyon Road - \$200,000 to \$1,000,000 (depending on whether the crossing can be addressed with a low water crossing, culverts, or a span bridge)
- Bridge at Red Water Pond Road - \$300,000 to \$3,000,000 (depending on repairs versus replacement. If the cost is in the million plus dollar range, then we would probably engage with NNDOT to design and implement an alternative route with a low water crossing about one mile upstream)
- Other road repairs on RWPR - \$100,000
- Mine Site Maintenance - \$10,000

**Proposed contracting cost: ~\$4,570,000**

### **XIII. Navajo Nation Superfund Building (Wilson Y.)**

**Purpose:** The proposed funding will provide \$175,000 of the Tronox Navajo Area Uranium Mines settlement to supplement the approximately \$1.8 million Navajo Nation Superfund ("NNSP") building project. Region 9 first anticipated this expenditure and sought OECA consultation regarding this in September 2012. (See attached Sept. 5, 2012, email from Manuel Ronquillo, Region 9 liaison in the Office of Site Remediation Enforcement, indicating that the expenditure met agency guidelines.) More recently, Region 9 staff have concluded that Region 9 staff and contractors will need to have offices in the vicinity of the proposed NNSP building in Window Rock for the duration of the Tronox work, which is expected to last at least 10 years, as part of our collaboration with NNSP staff during that time, including time meeting with NN officials and attending Uranium Commission meetings.

**Proposed cost: \$175,000**

### **XIV. Cooperative Agreements and Grants for Navajo Nation and Training/Education Institutions.**

**Purpose:** Provide capacity building for the Navajo Nation and resources for the implementation of the Tronox settlement in accordance with CERCLA and Navajo Fundamental Law.

**Proposed cost: TDB – Actual funding will be determined through grants requests and grant workplans.**



## **FY2016 Proposed Activities and Goals Tronox NAUM Settlement**

### **EPA Region 6**

#### **XV. East Agency Regional (Grants Mining District) Community Involvement Plan (Joan D., Lisa P., Secody H., and Chip P.)**

**Purpose:** This effort would be to develop an eastern agency regional Community Involvement Plan to facilitate two-way communication between the communities in and surrounding the New Mexico Tronox Mines (including those on the Navajo Reservation in New Mexico) and to encourage community involvement in site activities. EPA will utilize the community involvement activities outlined in this plan to ensure that residents are continuously informed and provided opportunities to be involved.

**Proposed Activities:** This Community Involvement Plan will address the New Mexico Tronox Mines (including those on the Navajo Reservation in New Mexico) relationship to the community and EPA, provide a background of the communities, present EPA's community involvement program, develop a communication plan, and provide a listing of resources available. EPA will draw upon several information sources to develop this plan, including New Mexico agencies, community interviews and site files. EPA's Region 6 Office, with the support of Region 9 and NN on areas with shared communities or NN jurisdiction, will oversee the implementation of the community involvement activities outlined in this Plan.

**Proposed contracting cost:** ~\$60,000

#### **XVI. Mine Site Evaluations and EE/CA (Warren Zehner/Jon Rinehart)**

**Purpose:** To investigate and propose alternatives to mitigate, reduce, or eliminate the potential for human or ecological exposures to mining-related uranium contaminated waste at Tronox Mines in the Ambrosia Lake area of the Grants Mining District.

**Background:** Mine activities began at the Section 35 and 36 Mines in 1958 and ceased in 2005, with approximately 2.5 million tons of uranium ore produced. Since the uranium-containing ore body is approximately 700 feet below ground surface, millions of gallons of groundwater were pumped from the mine shafts and discharged to arroyos and area surface water streams, thus increasing the acreage impacted from mining activities. The total area impacted at the Section 35 and 36 Mine Sites is approximately 600 acres and radiation has been measured at more than 100 times above background levels. The Section 10, 22 complex, 24 and 30 Mines are located western edge of Ambrosia Lake abutting Navajo Nation lands.

#### **Proposed Activities in 2016:**

- Non-time critical removal assessment/EE/CA for mine sites in the western area of the Ambrosia Lake sub-district. These are Sections 10, 22 complex, 24, and 30. These mines are next priority for several reasons that include; they abut Navajo lands, gives us more time to resolve some complicated access issues, and keeps us out of conflict with construction around the NRC mill site. Estimated field work start time frame is December 15 or January 16. Costs are based on current Section 35/36 activities.

**Proposed contracting cost:** \$1,700,000



- One year extension of the current Logistics and General support Task Order (TO) that we have in place. This TO covers our infrastructure and all logistic support for all Tronox NAUM operations in the Ambrosia Lake sub-district. Costs are based on the current TO scope, service rates.

**Proposed contracting cost: \$206,000**

- Start of construction on the remedy for Section 35/36. Estimated start date is August 2016. This is aggressive, but doable. EE/CA is expected to be finalized and put out for public comment in early March 2016. Based on the amount and complexity of comments some similar EE/CAs for mine closure within the area of interest this process is expected to be completed by the end of May 2016. The non-time critical action memorandum will be drafted during this process. The final action memo is expected to be completed, reviewed and approved by the end of July 2016. In a parallel course EPA 6 will start negotiations for an AOC with RAML about conducting a non-time critical removal on their property (Section 35) and also, negotiations with the SLO for removal on Section 36 and associated SLO land impacted by 35/36. These parallel negotiations will occur after the EE/CA is completed. Estimate is based on current EPA 6 ERRS rates, the projected amount of work that can be completed in calendar 2016. Estimated total removal duration is approximately 3 years to complete and will require additional funding in subsequent years. Detail of 2016 scope is included below:
  - a. mobilization and site prep (approximately \$3,000,000)
    - i. establish water farm (shaft water) for operational needs
    - ii. clear vegetation in removal areas
    - iii. repair and upgrade existing private roads as needed
    - iv. establish construction shack and on-site related infra-structure
  - b. prepare waste staging area or consolidation cell on RAML owned property
    - i. construction design and infrastructure establishment (\$1,500,000)
    - ii. overburden removal and rough in construction (\$3,500,000)
    - iii. final compaction and “finish” construction to accept waste (\$2,000,000)

**Proposed contracting cost: \$10,000,000**

**Total Proposed contracting cost \$11,906,000**

## **XVII. Water Supply Sources Investigation (Lisa P.)**

In keeping with the objectives of the 5-year plan (2015-2020) for the Grants Mining District, EPA Region 6 is proposing to continue investigating the impacts of mining on water resources and on human health and the environment related to the Tronox mines in Region 6.

**Purpose:** To strategically build on the understanding of impacts of mining and milling on the surface and groundwater in the Grants Mining District and the risks to human health through the development of a conceptual site model. The conceptual site model is a tool to understand the impacts of mining on the San Mateo Creek Basin (SMCB) water systems, and to identify current and potential future risks to human health.

**Background:** EPA Region 6 initially investigated groundwater quality impacts from mining and milling in the Grants Mining District at the request of New Mexico agencies in 1975. Since then, New Mexico agencies have



continued to monitor municipal drinking water sources, and with funding provided by EPA Region 6, the New Mexico Environment Department (NMED) has been sampling existing private groundwater wells from 2008 to present day. These wells are located in the SMCB where there isn't access to municipal water sources and most of the groundwater wells have concentrations of radionuclides above drinking water standards whether completed in the alluvium, in the Dakota Sandstone aquifer or deeper aquifers.

In 2015, EPA Region 6 assigned approximately \$1.4 million of Tronox dollars to fill in data gaps in the groundwater systems in the SMCB with a focus on attribution to the former Kerr McGee Uranium Mine operations. Installation and sampling of up to 22 new monitoring wells is currently underway. Additionally, existing wells will be sampled during this effort. Field work is expected to conclude late in the fall 2015.

#### **Proposed Activities in 2016:**

- Sampling and water analysis of existing alluvial and bedrock water wells to fill data gaps to further supplement information (\$150,000 contracting costs)
- Compilation and interpretation of data (aqueous geochemical and soil analytical, geologic, hydrology, and geophysical) from the following sources for input into the conceptual site model (\$800,000 contracting cost):
  - Strathmore study
  - Roca Honda study
  - NMED
  - Bluewater Mill site
  - Rio Algom Mill site
  - Phillips Mill

**Proposed contracting cost: ~\$950,000**

### **XVIII. Cooperative Agreements for NMED and MMD**

**Purpose:** Provide State resources for the implementation of the Tronox settlement in accordance with CERCLA and Navajo Fundamental Law.

**Proposed cost: ~\$400,000 - Actual funding will be determined through grants requests and grant workplans.**

**2016 Proposed Activities and Goals  
Tronox NAUM Settlement Summary  
(Regions 6 & 9)**

Region	Project	Contracting Cost
Region 9 - (I)	Cove Wash Watershed Activities	\$1,700,000
Region 9 - (II)	Cove Chapter Area Tronox Mines Remedial Investigation/Feasibility Study Activities	\$250,000
Region 9 - (III)	Cove Transfer Station Slope Stabilization and Cover Repair	\$350,000
Region 9 - (IV)	Cove Air Quality Sampling	\$500,000
Region 9 - (V)	Cove Day School Sampling	\$100,000
Region 9 - (VI)	MCAP Reconnaissance	\$400,000
Region 9 - (VII)	Removal Site Evaluations	\$2,500,000
Region 9 - (VIII)	Interim Actions (time critical/stabilization)	\$1,000,000
Region 9 - (IX)	LiDAR Drainage Assessment	\$1,000,000
Region 9 - (X)	Tronox Data Management Portal	\$200,000
Region 9 - (XI)	Section 32-33 EE/CA	\$200,000
Region 9 - (XII)	Quivira Mines Activities/EE/CA	\$4,570,000
Region 9 - (XIII)	NNSP Building	\$175,000
Region 9 - (XIV)	Cooperative Agreements and Grants for Navajo Nation and Training/Education Institutions.	(TBD)
<b>Total Region 9</b>		<b>\$12,945,000</b>
Region 6 - (XV)	East Agency Regional Grants Mining District Community Involvement Plan	\$60,000
Region 6 - (XVI)	Western Area Mines (Sections 10, 22 complex, 24, 30) Removal Assessment and EE/CA	\$1,700,000
	Logistics and General Support	\$206,000
	Sections 35/36 Non-Time Critical Removal Action	
	– Mobilization and Site Prep.	\$3,000,000
	– Waste Staging and Construction	
	o Design	\$1,500,000
	o Overburden Removal	\$3,500,000
	o Construction Completion	\$2,000,000
Region 6 - (XVII)	Water Supply Sources Investigation	\$950,000
Region 6 - (XVIII)	Cooperative Agreements for NMED and MMD	\$400,000
<b>Total Region 6</b>		<b>\$13,316,000</b>
<b>Total Region 6 &amp; 9 FY 2016</b>		<b>\$26,261,000*</b>

\*EPA costs (payroll, travel, expenses, and grants) associated with these projects that will be reported in the Special Account Quarterly Report.

Yellow – Indicates the proposed project was approved for funding during the December 3, 2015 Tronox meeting.